

16 p.

N 64 111074
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\$0.80 mkt

SPACE OPERATIONS CONTROL CENTER

SATELLITE SITUATION REPORT

VOL. 3, NO. 22/

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XEROX \$ 1.00 ph
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GODDARD SPACE FLIGHT CENTER,

GREENBELT, MD.

SPACE OPERATIONS CONTROL CENTER
GODDARD SPACE FLIGHT CENTER
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

VOLUME 3 NO. 22

NOVEMBER 15, 1963

SATELLITE SITUATION REPORT

THE FOLLOWING REPORT REFLECTS DATA COMPUTED AND COMPILED BY THE
GODDARD SPACE FLIGHT CENTER, NORAD, AND SMITHSONIAN ASTROPHYSICAL
OBSERVATORY AS OF 1200Z ON NOVEMBER 15, 1963.

| <u>OBJECT</u> | <u>CODE NAME</u> | <u>SOURCE</u> | <u>LAUNCH</u> | <u>NODAL PERIOD</u> | <u>INCLINATION</u> | <u>APOGEE Km.</u> | <u>PERIGEE Km.</u> | <u>TRANSMITTING FREQ. (MC/S)</u> |
|-------------------------|------------------|---------------|---------------|---------------------|--------------------|-------------------|--------------------|----------------------------------|
| | | | | | | | <u>KM.</u> | <u>(MC/S)</u> |
| <u>OBJECTS IN ORBIT</u> | | | | | | | | |
| ALPHA 1 | EXPLORER 1 | US | 1 FEB | 104.7 | 33.19 | 1638 | 338 | |
| BETA 1 | ROCKET BODY | US | 17 MAR | 138.2 | 34.24 | 4319 | 651 | |
| BETA 2 | VANGUARD 1 | US | 17 MAR | 133.8 | 34.23 | 3954 | 638 | 108.017 & |
| 1958 LAUNCHES | | | | | | | | |
| ALPHA 1 | VANGUARD 2 | US | 17 FEB | 125.3 | 32.88 | 3275 | 571 | |
| ALPHA 2 | ROCKET BODY | US | 17 FEB | 129.5 | 32.90 | 3688 | 531 | |
| ETA 1 | VANGUARD 3 | US | 18 SEP | 129.7 | 33.34 | 3762 | 471 | |
| MU 1* | LUNK 1 | USSR | 2 JAN | 450 D | 0.01 | 1.31AU | 0.9766AU | |
| NU 1* | PIONEER 4 | US | 3 MAR | 398 D | 1.30 | 1.142AU | 0.9871AU | |
| IOTA 1 | EXPLORER 7 | US | 13 OCT | 101.1 | 50.31 | 1075 | 552 | |
| IOTA 2 | ROCKET BODY | US | 13 OCT | 100.9 | 50.31 | 1055 | 551 | |
| 1959 LAUNCHES | | | | | | | | |
| ALPHA 1 | PIONEER 5 | US | 11 MAR | 312 D | 3.35 | 0.995AU | 0.8061AU | |
| BETA 1 | ROCKET BODY | US | 1 APR | 99.0 | 48.39 | 736 | 697 | |
| BETA 2 | TIROS 1 | US | 1 APR | 99.1 | 48.40 | 748 | 692 | |
| BETA 3 | NONE | US | 1 APR | 97.8 | 48.48 | 705 | 610 | |
| BETA 4 | NONE | US | 1 APR | 99.8 | 48.14 | 804 | 703 | |
| GAMMA 2 | TRANSIT 1B | US | 13 APR | 94.0 | 51.27 | 590 | 360 | |
| GAMMA 4 | NONE | US | 13 APR | 96.7 | 51.23 | 725 | 482 | |
| EPAILLON 3 | NONE | USSR | 15 MAY | 91.7 | 64.97 | 463 | 255 | |
| ZETA 1 | MIDAS 2 | US | 24 MAY | 94.2 | 33.07 | 497 | 475 | |
| ETA 1 | TRANSIT 2A | US | 22 JUN | 101.6 | 66.69 | 1057 | 613 | |
| ETA 2 | GREB | US | 22 JUN | 101.6 | 66.69 | 1055 | 613 | |
| ETA 3 | ROCKET BODY | US | 22 JUN | 101.4 | 66.67 | 1037 | 613 | |
| IOTA 1 | ECHO 1 | US | 12 AUG | 114.7 | 47.23 | 1836 | 1055 | |
| IOTA 2 | ROCKET BODY | US | 12 AUG | 118.0 | 47.25 | 1679 | 1509 | |
| IOTA 3 | METAL OBJECT | US | 12 AUG | 118.2 | 47.23 | 1700 | 1514 | |

OBJECTS IN ORBIT

| <u>OBJECT</u> | <u>CODE NAME</u> | <u>SOURCE</u> | <u>LAUNCH</u> | <u>NODAL PERIOD</u> | <u>INCLINATION</u> | <u>APOGEE Km.</u> | <u>PERIGEE Km.</u> | <u>TRANSMITTING FREQ. (MC/S)</u> |
|---------------|----------------------|---------------|---------------|---------------------------|--------------------|-------------------|--------------------|----------------------------------|
| 1960 LAUNCHES | | | | | | | | |
| LOTA 4 | METAL OBJECT | US | 12 AUG | 118.3 | 47.29 | 1692 | 1529 | |
| LOTA 5 | METAL OBJECT | US | 12 AUG | 106.9 | 28.35 | 1.226 | 952 | |
| NU 1 | COURIER 1B | US | 4 OCT | 106.4 | 28.28 | 1203 | 932 | |
| NU 2 | ROCKET BODY | US | 4 OCT | 112.3 | 49.97 | 2249 | 421 | |
| XI 1 | EXPLORER 8 | US | 3 NOV | 111.9 | 49.97 | 2212 | 423 | |
| XI 2 | ROCKET BODY | US | 3 NOV | 109.5 | 49.36 | 2015 | 399 | |
| XI 3 | NONE | US | 3 NOV | 110.7 | 50.49 | 2105 | 419 | |
| XI 4 | NONE | US | 3 NOV | 98.2 | 48.50 | 740 | 609 | |
| PI 1 | TIROS 2 | US | 23 NOV | 98.0 | 48.51 | 724 | 613 | |
| PI 2 | ROCKET BODY | US | 23 NOV | 98.1 | 48.52 | 729 | 613 | |
| PI 3 | NONE | US | 23 NOV | 98.2 | 48.49 | 735 | 620 | |
| 1961 LAUNCHES | | | | | | | | |
| ALPHA 1 | SAMOS 2 | US | 31 JAN | 94.8 | 97.42 | 538 | 473 | |
| ALPHA 2 | METAL OBJECT | US | 31 JAN | 94.7 | 97.43 | 537 | 468 | |
| GAMMA 1* | VENUS PROBE | USSR | 12 FEB | 300 D | 0.58 | 1.019AU | 0.7183AU | |
| DELTA 1 | EXPLORER 9 | US | 16 FEB | 113.2 | 38.96 | 2347 | 410 | |
| DELTA 2 | ROCKET BODY | US | 16 FEB | 118.4 | 38.85 | 2583 | 647 | |
| DELTA 3 | NONE | US | 16 FEB | INSUFFICIENT OBSERVATIONS | | | | |
| KAPPA 1 | EXPLORER 10 | US | 25 MAR | POSITION UNCERTAIN | | | | |
| NU 1 | EXPLORER 11 | US | 27 APR | 107.8 | 28.84 | 1768 | 496 | |
| OMICRON 1 | TRANSIT 4A | US | 29 JUN | 103.8 | 66.80 | 998 | 880 | 150;400 |
| OMICRON 2 | INJUN-SR-3 | US | 29 JUN | 103.8 | 66.80 | 997 | 882 | |
| OMICRON | 3-206**METAL OBJECTS | US | 29 JUN | | | | | |
| RHO 1 | TIROS 3 | US | 12 JUL | 100.3 | 47.90 | 790 | 765 | |
| RHO 2 | ROCKET BODY | US | 12 JUL | 100.3 | 47.92 | 799 | 751 | |
| RHO 3 | METAL OBJECT | US | 12 JUL | 98.8 | 47.92 | 788 | 620 | |
| RHO 4 | METAL OBJECT | US | 12 JUL | 101.9 | 47.84 | 942 | 766 | |
| SIGMA 1 | MIDAS 3 | US | 12 JUL | 161.5 | 91.19 | 3573 | 3316 | |
| SIGMA 3 | METAL OBJECT | US | 12 JUL | 161.2 | 91.13 | 3556 | 3306 | |
| SIGMA 4 | METAL OBJECT | US | 12 JUL | 161.9 | 91.27 | 3578 | 3344 | |

OBJECTS IN ORBIT

| <u>OBJECT</u> | <u>CODE NAME</u> | <u>SOURCE</u> | <u>LAUNCH</u> | <u>NODAL PERIOD</u> | <u>INCLINATION</u> | <u>APOGEE Km.</u> | <u>PERIGEE Km.</u> | <u>TRANSMITTING FREQ. (MC/S)</u> |
|---------------|------------------|---------------|---------------|---------------------------|--------------------|-------------------|--------------------|----------------------------------|
| 1961 LAUNCHES | | | | | | | | |
| UPSILON 1 | EXPLORER 12 | US | 16 AUG | INSUFFICIENT OBSERVATIONS | | | | |
| A DELTA 1 | MIDAS 4 | US | 21 OCT | 166.0 | 95.86 | 3769 | 3483 | |
| A DELTA 3 | METAL OBJECT | US | 21 OCT | 165.6 | 95.87 | 3723 | 3496 | |
| A DELTA 4 | METAL OBJECT | US | 21 OCT | 166.4 | 95.81 | 3782 | 3503 | |
| A ETA 1 | TRANSIT 4B | US | 15 NOV | 105.6 | 32.44 | 1105 | 957 | |
| A ETA 2 | TRAAC | US | 15 NOV | 105.6 | 32.43 | 1105 | 959 | |
| A ETA 3 | ROCKET BODY | US | 15 NOV | 105.5 | 32.43 | 1092 | 957 | |
| 1962 LAUNCHES | | | | | | | | |
| ALPHA 1* | RANGER 3 | US | 26 JAN | 406.4D | 3988 | 1.163AU | 0.9839AU | |
| ALPHA 2 | ROCKET BODY | US | 26 JAN | INSUFFICIENT OBSERVATIONS | | | | |
| BETA 1 | TIROS 4 | US | 8 FEB | 100.3 | 48.30 | 868 | 684 | |
| BETA 2 | ROCKET BODY | US | 8 FEB | 101.3 | 48.13 | 934 | 712 | |
| BETA 3 | METAL OBJECT | US | 8 FEB | 99.4 | 48.40 | 768 | 699 | |
| BETA 4 | METAL OBJECT | US | 8 FEB | 100.2 | 48.30 | 828 | 719 | |
| ZETA 1 | ORB.SOL.OBS. 1 | US | 7 MAR | 95.9 | 32.83 | 588 | 551 | |
| ZETA 2 | ROCKET BODY | US | 7 MAR | 95.9 | 32.81 | 578 | 562 | |
| KAPPA 1 | | US | 9 APR | 153.0 | 86.68 | 3412 | 2783 | |
| KAPPA 3 | | US | 9 APR | 152.7 | 86.66 | 3376 | 2786 | |
| KAPPA 4 | | US | 9 APR | 153.4 | 86.66 | 3432 | 2791 | |
| MU 2 | ROCKET BODY | US | 23 APR | INSUFFICIENT OBSERVATIONS | | | | |
| OMICRON 1 | ARIEL | US/UK | 26 APR | 100.6 | 53.86 | 1190 | 387 | |
| OMICRON 2 | ROCKET BODY | US/UK | 26 APR | 100.5 | 53.84 | 1188 | 384 | |
| SIGMA 1 | | US | 15 MAY | 89.6 | 82.32 | 269 | 232 | |
| A ALPHA 1 | TIROS 5 | US | 19 JUN | 100.4 | 58.11 | 959 | 603 | |
| A ALPHA 2 | ROCKET BODY | US | 19 JUN | 100.4 | 58.11 | 950 | 605 | |
| A ALPHA 3 | METAL OBJECT | US | 19 JUN | 101.7 | 58.21 | 1056 | 617 | |
| A ALPHA 4 | METAL OBJECT | US | 19 JUN | 99.1 | 57.99 | 851 | 581 | |
| A EPSILON 1 | TELSTAR 1 | US | 10 JUL | 157.7 | 44.80 | 5651 | 940 | |
| A EPSILON 2 | ROCKET BODY | US | 10 JUL | 157.6 | 44.78 | 5622 | 956 | |

OBJECTS IN ORBIT

| <u>OBJECT</u> | <u>CODE NAME</u> | <u>SOURCE</u> | <u>LAUNCH</u> | <u>NODAL PERIOD</u> | <u>INCLINATION</u> | <u>APOGEE Km.</u> | <u>PERIGEE Km.</u> | <u>TRANSMITTING FREQ. (MC/S)</u> |
|---------------|------------------|---------------|---------------|---------------------------|--------------------|-------------------|--------------------|----------------------------------|
| 1962 LAUNCHES | | | | | | | | |
| A OMICRON 1 | | US | 23 AUG | 99.6 | 98.67 | 859 | 613 | |
| A OMICRON 2 | | US | 23 AUG | 98.3 | 98.69 | 752 | 598 | |
| A OMICRON 3 | | US | 23 AUG | 100.9 | 98.67 | 967 | 626 | |
| A OMICRON 4 | | US | 23 AUG | 99.6 | 98.69 | 860 | 611 | |
| A RHO 1* | | US | 27 AUG | COMPUTATIONS IN PROGRESS | | | | |
| A RHO 2* | | US | 27 AUG | COMPUTATIONS IN PROGRESS | | | | |
| A UPSILON 1 | | US | 1 SEP | 92.7 | 82.80 | 526 | 279 | |
| A PSI 1 | TIROS 6 | US | 18 SEP | 98.7 | 58.32 | 700 | 696 | |
| A PSI 2 | ROCKET BODY | US | 18 SEP | 98.7 | 58.30 | 715 | 676 | |
| A PSI 3 | METAL OBJECT | US | 18 SEP | 99.4 | 58.44 | 779 | 680 | |
| A PSI 4 | METAL OBJECT | US | 18 SEP | 98.0 | 58.21 | 701 | 629 | |
| B ALPHA 1 | ALOUETTE | CANADA | 29 SEP | 105.5 | 80.46 | 1038 | 995 | \$136.979; \$136.592 |
| B ALPHA 2 | ROCKET BODY | US | 29 SEP | 105.5 | 80.47 | 1033 | 994 | |
| B ALPHA 3 | METAL OBJECT | US | 29 SEP | 105.4 | 80.51 | 1027 | 995 | |
| B ALPHA 4 | METAL OBJECT | US | 29 SEP | 105.5 | 80.44 | 1045 | 988 | |
| B GAMMA 1 | EXPLORER 14 | US | 2 OCT | 2184.6 | 40.85 | 96316 | 2473 | 136.440 |
| B GAMMA 2 | ROCKET BODY | US | 2 OCT | INSUFFICIENT OBSERVATIONS | | | | |
| B ETA 1* | RANGER 5 | US | 18 OCT | 366D | 39011 | 1.052AU | .9490AU | |
| B ETA 2* | ROCKET BODY | US | 18 OCT | COMPUTATIONS IN PROGRESS | | | | |
| B THETA 1 | | USSR | 20 OCT | 92.8 | 48.98 | 601 | 230 | |
| B KAPPA 1 | | US | 26 OCT | 139.7 | 71.53 | 4854 | 226 | |
| B LAMBDA 1 | EXPLORER 15 | US | 27 OCT | 314.3 | 17.98 | 17572 | 318 | |
| B LAMBDA 2 | ROCKET BODY | US | 27 OCT | INSUFFICIENT OBSERVATIONS | | | | |
| B MU 1 | ANNA 1 B | US | 31 OCT | 107.8 | 50.16 | 1188 | 1072 | |
| B MU 2 | ROCKET BODY | US | 31 OCT | 107.6 | 50.17 | 1152 | 1082 | |
| B NU 3* | | USSR | 1 NOV | 519 D | 2.683 | 1.604AU | 9237AU | |
| B TAU 1 | | US | 13 DEC | 112.4 | 70.33 | 2438 | 232 | |
| B TAU 2 | INJUN 3 | US | 13 DEC | 114.1 | 70.33 | 2593 | 237 | \$136.870 |
| B TAU 4 | | US | 13 DEC | 110.4 | 70.35 | 2261 | 231 | |

OBJECTS IN ORBIT

| <u>OBJECT</u> | <u>CODE NAME</u> | <u>SOURCE</u> | <u>LAUNCH PERIOD</u> | <u>NODAL PERIOD</u> | <u>INCLINATION</u> | <u>APOGEE Km.</u> | <u>PERIGEE Km.</u> | <u>TRANSMITTING FREQ. (MC/S)</u> |
|----------------------|------------------|---------------|--------------------------|---------------------|--------------------|-------------------|--------------------|----------------------------------|
| 1962 LAUNCHES | | | | | | | | |
| B TAU 5 | | US | 13 DEC | 112.3 | 70.32 | 2430 | 231 | |
| B TAU 6 | | US | 13 DEC | 113.7 | 70.34 | 2556 | 235 | |
| B UPSILON 1 | RELAY 1 | US | 13 DEC | 135.0 | 47.50 | 7441 | 1316 | 136.140; \$136.620 |
| B UPSILON 2 | ROCKET BODY | US | 13 DEC | 184.7 | 47.73 | 7413 | 1326 | |
| B CHI 1 | EXPLORER 16 | US | 16 DEC | 104.3 | 52.01 | 1195 | 735 | |
| B PSI 1 | TRANSIT 5A | US | 19 DEC | 99.1 | 90.63 | 737 | 692 | |
| B PSI 2 | | US | 19 DEC | 97.8 | 90.73 | 736 | 568 | |
| B PSI 3 | | US | 19 DEC | 99.1 | 90.63 | 732 | 697 | |
| B PSI 4 | | US | 19 DEC | 100.3 | 90.48 | 831 | 706 | |
| 1963 LAUNCHES | | | | | | | | |
| 1963 3A | | US | 16 JAN | 94.6 | 81.88 | 536 | 455 | |
| 1963 3C | | US | 16 JAN | 92.6 | 81.87 | 420 | 376 | |
| 1963 4A | SYNCOM | US | 14 FEB | 1426.4 | 33.51 | 37016 | 34182 | |
| 1963 4B | ROCKET BODY | US | 14 FEB | 604.4 | 33.12 | 4368.7 | 253 | |
| 1963 5A | | US | 19 FEB | 97.8 | 100.50 | 803 | 496 | |
| 1963 5B | | US | 19 FEB | 97.8 | 100.50 | 794 | 504 | |
| 1963 5C | | US | 19 FEB | 97.0 | 100.51 | 764 | 463 | |
| 1963 5D | | US | 19 FEB | 98.4 | 100.49 | 842 | 520 | |
| 1963 8B | USSR | 2 APR | COMPUTATIONS IN PROGRESS | | | | | |
| 1963 9A | | US | 3 APR | 95.7 | 57.62 | 857 | 250 | |
| 1963 9B | EXPLORER 17 | US | 3 APR | 90.3 | 57.51 | 369 | 214 | |
| 1963 13A | ROCKET BODY | US | 7 MAY | 225.2 | 42.76 | 10812 | 967 | 136.050 |
| 1963 13B | TELSTAR 2 | US | 7 MAY | 225.1 | 42.74 | 10798 | 967 | |
| 1963 14A | ROCKET BODY | US | 9 MAY | 156.5 | 87.37 | 3680 | 3609 | |
| 1963 14B | | US | 9 MAY | 166.5 | 87.35 | 3673 | 3618 | 136.892 |
| 1963 14C | | US | 9 MAY | 166.5 | 87.34 | 3682 | 3608 | 136.415 |
| 1963 14D | | US | 9 MAY | 166.5 | 87.36 | 3676 | 3611 | |
| 1963 14E | | US | 9 MAY | 166.1 | 87.47 | 3669 | 3591 | |
| 1963 14F | | US | 9 MAY | 166.9 | 87.34 | 3697 | 3623 | |
| 1963 14G | | US | 9 MAY | 166.5 | 87.35 | 3659 | 3629 | |

| OBJECT | CODE NAME | SOURCE | OBJECTS IN ORBIT | | | | PERIGEE Km. | TRANSMITTING FREQ. (MC/S) |
|----------------------|---|--------|------------------|-----------------|------------------|---------------|----------------|--|
| | | | LAUNCH | NODAL PERIOD | INCLIN- ATION | APOGEE Km. | | |
| 1963 LAUNCHES | | | | | | | | |
| 1963 17A | | USSR | 22 MAY | 93.9 | 48.96 | 697 | 245 | |
| 1963 17C | | USSR | 22 MAY | 95.3 | 49.19 | 746 | 328 | |
| 1963 17G | | USSR | 22 MAY | 92.7 | 48.99 | 577 | 246 | |
| 1963 22A | TIROS 7 | US | 16 JUN | 99.8 | 90.01 | 753 | 150;400 | |
| 1963 22B | ROCKET BODY | US | 16 JUN | 99.8 | 90.02 | 763 | 724 | |
| 1963 22C | METAL OBJECT | US | 16 JUN | 101.3 | 90.21 | 889 | 745 | |
| 1963 22D | METAL OBJECT | US | 16 JUN | 98.2 | 89.83 | 765 | 578 | |
| 1963 24A | RESEARCH SATELLITE US FOR GEOPHYSICS | US | 19 JUN | 97.4 | 58.24 | 655 | 617 | 136.233;136.992 |
| 1963 24B | ROCKET BODY | US | 19 JUN | 97.3 | 58.23 | 659 | 606 | |
| 1963 24C | ROCKET BODY | US | 19 JUN | 97.9 | 58.37 | 680 | 635 | |
| 1963 24D | METAL OBJECT | US | 19 JUN | 96.9 | 58.10 | 652 | 569 | |
| 1963 25B | METAL OBJECT | US | 27 JUN | 132.5 | 82.15 | 4124 | 336 | |
| 1963 26A | RESEARCH SATELLITE US FOR GEOPHYSICS | US | 28 JUN | 102.0 | 49.73 | 1304 | 414 | |
| 1963 27A | | US | 29 JUN | 94.8 | 82.31 | 524 | 487 | |
| 1963 27B | | US | 29 JUN | 94.3 | 82.30 | 488 | 480 | |
| 1963 30A | | US | 19 JUL | 167.9 | 88.37 | 3765 | 3638 | |
| 1963 30B | | US | 19 JUL | 167.9 | 88.41 | 3730 | 3673 | 136.891 |
| 1963 30C | | US | 19 JUL | 167.5 | 88.37 | 3730 | 3644 | |
| 1963 30D | | US | 19 JUL | 168.0 | 88.50 | 3824 | 3589 | |
| 1963 30E | | US | 19 JUL | 168.3 | 88.42 | 3765 | 3673 | |
| 1963 31A | SYNCOM 2 | US | 26 JUL | 1436.0 | 33.16 | 35811 | 35761 | \$136.980;\$136.468 \$1814.069;\$1815.794 \$1820.177 |
| 1963 31B | ROCKET BODY | US | 26 JUL | 627.0 | 33.15 | 35544 | 255 | |
| 1963 33A | | USSR | 6 AUG | 91.4 | 49.02 | 443 | 254 | |
| 1963 33B | | USSR | 6 AUG | 90.3 | 49.04 | 343 | 243 | |
| 1963 38A | | US | 28 SEP | 107.1 | 89.91 | 1118 | 1065 | |
| 1963 38B | | US | 28 SEP | 107.4 | 89.91 | 1139 | 1070 | |
| 1963 38C | | US | 28 SEP | 107.4 | 89.91 | 1136 | 1071 | 136.650 |
| 1963 38D | | US | 28 SEP | 107.4 | 89.91 | 1137 | 1071 | |

| | | <u>OBJECTS IN ORBIT</u> | | | | INCLINATION NATION | APOGEE Km. | PERIGEE Km. | TRANSMITTING FREQ. (MC/S) |
|----------------------|------------------|-------------------------|---------------|---------------------|--|---------------------------|---------------|----------------|------------------------------|
| <u>OBJECT</u> | <u>CODE NAME</u> | <u>SOURCE</u> | <u>LAUNCH</u> | <u>NODAL PERIOD</u> | | | | | |
| 1963 LAUNCHES | | | | | | | | | |
| 1963 39A | | US | 17 OCT | | | INSUFFICIENT OBSERVATIONS | | | |
| 1963 39B | | US | 17 OCT | | | INSUFFICIENT OBSERVATIONS | | | |
| 1963 42A | | US | 29 OCT | 90.7 | | 89.90 | 338 | | 136.530 & |
| 1963 42B | | US | 29 OCT | 93.4 | | 89.96 | 570 | | 274 |
| 1963 43A | POLYOT 1 | USSR | 1 NOV | 102.4 | | 58.87 | 1420 | | 302 |
| 1963 43B | | USSR | 1 NOV | 102.4 | | 58.57 | 1420 | | 331 |
| 1963 43C | | USSR | 1 NOV | 101.4 | | 58.91 | 1358 | | 327 |
| 1963 43D | | USSR | 1 NOV | 102.1 | | 59.78 | 1389 | | 292 |
| | | | | | | | | | 328 |

- * APHELION PERIHELION IN ASTRONOMICAL UNITS, INCLINATION TO ECLIPTIC.
- ** TWO HUNDRED AND FOUR METAL OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1961 OMICRON 1 AND 1961 OMICRON 2. OBJECTS OF THIS SERIES THAT HAVE DEGRADED CAN BE FOUND IN THE DEGRADED OBJECTS LISTS.
- \$ TRANSMITTING ON COMMAND ONLY.
- & TRANSMITTING WHEN IN SUNLIGHT ONLY.

PLEASE ADD THE FOLLOWING TO THE DEGRADED OBJECTS LIST

| <u>OBJECT</u> | <u>CODE NAME</u> | <u>SOURCE</u> | <u>LAUNCH</u> | <u>DECAY</u> |
|---------------|------------------|---------------|---------------|--------------|
| 1963 3B | | US | 16 JAN | 8 NOV 63 |
| 1963 35A | | US | 29 AUG | 7 NOV 63 |
| 1963 40B | COSMOS 20 | USSR | 18 OCT | 30-31 OCT 63 |
| 1963 44A | COSMOS 21 | USSR | 11 NOV | 14 NOV 63 |
| 1963 44B | | USSR | 11 NOV | 12 NOV 63 |